Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Commission Seeks Public Comment on	)	ET Docket No. 02-135
Spectrum Policy Task Force Report	)	
	)	
To: The Commission	)	

Via the ECFS

COMMENTS OF AGERE SYSTEMS ON THE REPORT OF THE COMMISSION'S SPECTRUM POLICY TASK FORCE

Agere Systems ("Agere") hereby submits its comments on the Report of the Commission's Spectrum Policy Task Force (the "Report") in the above-captioned Proceeding.

As a leading manufacturer of devices and components for devices that operate under Part 15 of the Commission's rules, as well as components for CMRS equipment, Agere is an interested party in this proceeding.

According to the Order (ET 02-3400) released December 11, 2002, the deadline for filing Comments in the above-captioned matter was extended to January 27, 2003. Therefore these Comments are timely filed.

We appreciate the opportunity to offer these Comments.

INTRODUCTION

1. Agere commends the Commission and its Spectrum Policy Task Force on the tremendous amount of work that it has accomplished in such a short time in preparing the Report.

2. We believe that the SPTF's mission is an important one and that the Report will be of great assistance to the Commission in addressing many pressing spectrum issues, including interference protection, spectral efficiency, effective public safety communications, the increased need for unlicensed spectrum, and international spectrum policies.

3. We do, however, respectfully wish to offer the following comments on the Report.

TASK FORCE MAJOR FINDINGS AND RECOMMENDATIONS

4. We agree with the Report's conclusion that advances in technology create the potential for systems to use spectrum more intensively and to be much more tolerant of interference than in the past. The Commission should leverage this fact, and the opportunities that it provides, to promulgate policies and rules that promote more intensive and efficient use of spectrum, and more opportunities for spectrum sharing, using the minimum regulation necessary.

5. We also agree with the Report's observation that access is a more significant problem than actual scarcity, due to the fact that regulatory regimes have not kept pace with the staggering advances in technology of recent years.

6. We do, however, have concerns that, "market-oriented" policies may not, in all cases, be the best solution to promoting greater access to, and more efficient use of, the spectrum. The ability to bid large sums of money at auction for access to spectrum may not always result in the best use of spectrum, or fair access to all potential uses.

7. Some users of the spectrum, and the business/marketing models for some types of uses of the spectrum, would be severely disadvantaged with respect to fair and reasonable access to spectrum in an environment where auctions are the overwhelmingly predominant means of allocating spectrum.

8. Spectrum policies and spectrum allocation models must exist that accommodate both licensed and unlicensed users and applications.

9. Some services may be provided most efficiently in a licensed environment, while others, due to the nature of their markets, require the flexibility of being unlicensed (or, alternatively, "licensed by rule," "licensed by compliance," or "license-exempt" to suggest different terminology and/or status)[1] and may operate in a "commons."

10. The fact that a device, service, or application does not require an individual license, nor does it operate under the auspices of an infrastructure licensee, should not necessarily effectively relegate it to regulatory non-status.

11. Unlicensed uses have clearly demonstrated the ability to excel at rapidly developing and deploying a wide variety of new technologies and services to the public. Part 15 of the Commission's rules has been nothing less than a stunning regulatory success.

12. However, always having a licensed service that has higher regulatory status than unlicensed services in shared bands creates a level of regulatory uncertainty that may eventually discourage the investment necessary by industry to continue the current pace of development and delivery of such new technologies and services.

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[1] Hereafter, when we use the term "unlicensed," we would encourage the Commission to consider the possible alternative of the "licensed by rule," "licensed by compliance," or "license-exempt" paradigm suggested above.

13. It would truly be a shame if the what is effectively the Commission's "child prodigy" were to have its development unintentionally stunted by being relegated to a regulatory environment that stifled, rather than encouraged, its continued growth and advancement.

SPECTRUM USE

14. We are glad to see the Commission recognize and acknowledge the fact that, given the opportunity, industry could readily, with today's state of the art, develop systems to efficiently take advantage of unused "white spaces" in time, frequency, and geographic location, resulting in more efficient use of the spectrum and greater access opportunities for the public.

15. Current spectrum holders should be held responsible for the efficient use of assigned spectrum, in order to preserve their rights to hold spectrum allocations. Current spectrum holders should not effectively be granted a license in perpetuity to refuse any reasonable possibility of shared access to their allocations to the detriment of others who could make good use of unused time and bandwidth.

THE CASE FOR SPECTRUM REFORM

16. In the Report, the SPTF recognized the following points:

- *Increasing demand for spectrum-based services and devices is straining longstanding and outmoded spectrum policies.*
- *As a result, it is important to evolve from current spectrum policies, which reflect an environment made up of a limited number of types of operations, to policies that reflect the increasingly dynamic and innovative nature of spectrum use.*
- *The Commission should also strive, wherever possible, to eliminate regulatory barriers to increased spectrum access.*

17. We agree completely with all three points above. Spectrum reform is needed, and the principles outlined in these points are clearly correct and to the point.

COMMON ELEMENTS OF SPECTRUM POLICY

18. In the Report, the SPTF also made the following observations with respect to regulatory models:

- *No single regulatory model can or should be applied to all spectrum, but there are certain common elements that the Commission should incorporate into its spectrum policy regardless of the regulatory model that is used.*
    - *Maximum feasible flexibility of spectrum use by both licensed and unlicensed users.*
    - *Clear and exhaustive definition of spectrum users' rights and responsibilities.*
    - *Policies that account for all potential dimensions of spectrum usage (frequency, power, space, and time).*
    - *Incentives for efficient spectrum use.*
    - *Policies that encourage grouping of spectrum "neighbors" with technically compatible characteristics.*
    - *Periodic review and revision of spectrum rules to account for technological advances and other changes.*
    - *Efficient and reliable enforcement mechanisms to ensure regulatory compliance by all spectrum users.*

19. We agree with the points above, with one limited exception. While grouping would appear on the surface to minimize interference potential and could be a useful tactic in some situations, it should not be viewed as a panacea because it could preclude innovative approaches which would allow opportunistic spectrum reuse on a non-interference basis between systems with quite different technical characteristics (e.g., see ET Docket No. 02-380, where the Commission is seeking input on the feasibility of permitting unlicensed devices to intelligently use unused television spectrum on a time/channel/location basis).

INTERFERENCE AVOIDANCE

20. We do not believe that predictive interference models have become outmoded or useless.

21. Computational power continues to become less and less expensive at a nearly exponential rate, our understanding of propagation and modulation and coding techniques continue to improve, and extensive digital terrain databases are readily available, with the result that increasingly comprehensive modeling tools are continually becoming available.

22. While we agree with the Report's conclusion that a more quantitative approach to interference management (and spectral efficiency, as well, we would add) is desirable, we have concerns that the "interference temperature" metric proposed in the Report may not be the most appropriate metric to evaluate the feasibility of spectrum sharing and we observe that it does not appear to directly consider spectrum efficiency at all.

23. We also note that the SPTF was likewise uncertain of the overall merit of the "W_{eff}" spectrum efficiency metric proposed in the previously filed comments of IEEE 802.

24. In light of the fact that there appears to be a lack of clear consensus as to what are the most appropriate sharing feasibility and spectral efficiency metrics, we would suggest further discussions and study between industry and the Commission's staff may be advisable.

25. The Report states that the Commission should consider applying receiver performance requirements for some bands and services, either through incentives, regulatory mandates, or some combination of incentives and mandates.

26. Generally, we believe that receiver requirements are best left to industry standards groups. However, some segments of the community of spectrum users may have little incentive on their own to improve the robustness of their systems (including receivers), with the result that they will claim to be unable to share spectrum that could be shared if only they employed more robust systems (including receivers). In some cases, a mandate designed to provide the necessary incentive may be necessary to improve spectrum efficiency and/or permit increased access to underutilized spectrum.

SPECTRUM RIGHTS MODELS

27. While we agree fully with the Report's conclusion that "one size does not fit all" in spectrum policy, we would respectfully suggest that the "Exclusive use" model should not necessarily preclude an allowance for opportunistic sharing as an "underlay" on a non-interference basis, nor should the "Commons" model necessarily and inherently mean that there is no right to protection from interference.

28. The Commission should consider providing sufficient flexibility in its policies for more than one type of "commons" and that at least some of these "commons" should, to the maximum degree possible, not be encumbered with licensed users with higher regulatory status, and therefore the ability to "shut down" the users of the commons.

29. The Report cites transaction costs as a partial determining factor in the decision between employing the exclusive use and commons models in particular bands.

30. We would observe that transaction costs will generally be relatively low in applications that involve centralized control of network infrastructure (e.g. cellular and similar services), but will be prohibitively high in other applications such as consumer electronics, wireless computer networks, etc. where such centralized control does not, due to the nature of the application exist.

31. We believe that in many cases transaction costs are more dependent on the application than on the frequency band that the application employs.

32. We also agree with the Report's conclusions that the command and control model should be used only in certain limited situations, such as where prescribing spectrum use by regulation is necessary to accomplish important public interest objectives, to conform to treaty obligations, or to address beneficial international harmonization considerations.[2]

33. We also believe that very effort should be made to allow opportunistic reuse of unused broadcast spectrum, in fact all unused or underutilized spectrum, not only spectrum assigned to a "commons," by unlicensed devices on a non-interference basis.

PROMOTING ACCESS TO SPECTRUM

34. On this subject, the Report states, in part:

- *The Commission should, where feasible, seek to designate additional bands for unlicensed spectrum use to better optimize spectrum access and provide room for expansion in the fast-growing market for unlicensed devices and networks.*

35. We agree completely. One of the major themes in the SPTF's initial inquiry and in the SPTF workshops was the pressing need for more spectrum for unlicensed devices. We would encourage the Commission to rapidly move forward in providing additional spectrum for use by unlicensed devices, before the currently available spectrum is saturated by this market's exponential growth and the quality of service that users experience inevitably begins to degrade due to congestion. To wait until congestion reaches a critical point would be a mistake, because, once that point is reached, the delays inherent in the regulatory process would only exacerbate the problem to the detriment of consumers.

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[2] We would observe that the globally harmonized allocation proposed for wireless access systems, including RLANs, in WRC-03 Agenda Item 1.5 is a perfect, and timely, example of the latter example.

SUMMARY

36. Agere again commends the Commission and its Spectrum Policy Task force for the depth, breadth, and quality of its work, as embodied in the SPTF Report.

37. We respectfully urge the Commission to expeditiously issue a Notice of Inquiry seeking further comment on the topics discussed herein, taking into account the recommendations we offer in these Comments, and to proceed as rapidly as possible thereafter with implementation of spectrum policy reforms, particularly the provision of more spectrum for the unlicensed devices under "Commons" allocation model.

Respectfully submitted,

/s/
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